WHAT IS CLAIMED IS:

1. For use with a polishing apparatus, a polishing endpoint detection system, comprising:

a carrier head having a polishing platen associated therewith;

a signal emitter located adjacent one of said carrier head or polishing platen, said signal emitter configured to generate an emitted signal capable of traveling through an object to be polished; and

a signal receiver located adjacent another of said carrier head or polishing platen and configured to receive said emitted signal from which a change in a signal intensity of said emitted signal can be determined.

2. The system as recited in Claim 1 wherein said signal emitter is located adjacent said carrier head and said signal receiver is located adjacent said polishing platen.

3. The system as recited in Claim 1 wherein said signal emitter is located adjacent said polishing platen and said signal receiver is located adjacent said carrier head.

4. The system as recited in Claim 1 wherein said emitted

signal is comprised of acoustic waves.

5. The system as recited in Claim 4 wherein said acoustic waves are ultrasonic.

6. The system as recited in Claim 1 wherein said emitted signal is comprised of acoustic waves having a plurality of frequencies and wherein said signal receiver is configured to receive said emitted signal from which a change in a signal intensity of each of said plurality of acoustic waves can be determined.

7. The system as recited in Claim 1 wherein said signal intensity includes a signal characteristic selected from the group consisting of:

a signal wavelength, and

a signal amplitude.

8. A method of determining a polishing endpoint of a surface located on a semiconductor wafer, comprising:

emitting a first signal from an emitter located adjacent one of a carrier head or a polishing platen and causing said first signal to pass through a polished film located on a semiconductor wafer, and thereby provide a second signal having a signal intensity less than a signal intensity of said first signal;

receiving said second signal emanating from said film with a receiver located adjacent another of said carrier head or said polishing platen; and

determining a polishing endpoint for said film as a function of a change of intensity between said first and second signals.

9. The method as recited in Claim 8 wherein said emitting a first signal includes emitting a first signal from a signal emitter located adjacent said carrier head and said receiving said second signal includes receiving said second signal with a signal receiver located adjacent said polishing platen.

10. The method as recited in Claim 8 wherein said emitting a first signal includes emitting a first signal from a signal emitter located adjacent said polishing platen and said receiving said second signal includes receiving said second signal with a signal

receiver located adjacent said carrier head.

11. The method as recited in Claim 8 wherein said emitting a first signal includes emitting a first signal comprised of acoustic waves.

12. The method as recited in Claim 11 wherein said emitting a first signal comprised of acoustic wavers includes emitting a first signal comprised of ultrasonic acoustic waves.

13. The method as recited in Claim 8 wherein said emitting a first signal includes emitting a first signal comprised of acoustic waves having a plurality of frequencies and wherein said determining includes determining a polishing endpoint for said film as a function of a change of intensity of each of said plurality of acoustic waves between said first and second signals.

14. The method as recited in Claim 8 wherein said determining includes determining a polishing endpoint for said film as a function of a change of a signal wavelength or a signal amplitude between said first and second signals.

15. A method of manufacturing an integrated circuit, comprising:

forming an integrated circuit layer on a semiconductor wafer;

polishing said integrated circuit layer with a polishing apparatus having a carrier head and a polishing platen associated therewith;

determining a polishing endpoint of said integrated circuit layer, including:

emitting a first signal from an emitter located adjacent one of said carrier head or said polishing platen and causing said first signal to strike said integrated circuit layer, and thereby provide a second signal having a signal intensity less than a signal intensity of said first signal;

receiving said second signal emanating from said integrated circuit layer with a receiver located adjacent another of said carrier head or said polishing platen; and

determining said polishing endpoint as a function of a difference of intensity between said first and second signals.

16. The method as recited in Claim 15 wherein said second signal is a resulting signal that results from said first signal striking said integrated circuit layer.

17. The method as recited in Claim 15 wherein said emitting a first signal includes emitting a first signal from a signal emitter located adjacent said carrier head and said receiving said second signal includes receiving said second signal with a signal receiver located adjacent said polishing platen.

18. The method as recited in Claim 15 wherein said emitting a first signal includes emitting a first signal from a signal emitter located adjacent said polishing platen and said receiving said second signal includes receiving said second signal with a signal receiver located adjacent said carrier head.

19. The method as recited in Claim 15 wherein said emitting a first signal comprised of acoustic wavers includes emitting a first signal comprised of ultrasonic acoustic waves.

20. The method as recited in Claim 15 wherein said emitting a first signal includes emitting a first signal comprised of acoustic waves having a plurality of frequencies and wherein said determining includes determining a polishing endpoint for said integrated circuit layer as a function of a change of intensity of each of said plurality of acoustic waves between said first and second signals.

21. The method as recited in Claim 15 wherein said determining includes determining a polishing endpoint for said integrated circuit layer as a function of a change of a signal wavelength or a signal amplitude between said first and second signals.

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